



United States Department of Agriculture



**CHUGACH  
NATIONAL FOREST**

# Junior Ranger

**FIELD NOTEBOOK**



Gulf of Alaska

CHUGACH NATIONAL FOREST BOUNDARY



NAME: \_\_\_\_\_

# Hey Future Ranger!

## Welcome to the Chugach National Forest!

The Chugach National Forest is **5.4 MILLION acres**, making it one of the largest national forests in the United States. That's a lot of land to explore. What will you do while you're visiting—hike a trail, catch a fish, camp outside, or \_\_\_\_\_?



**Fun Fact!** Chugach National Forest is about the same size as New Hampshire!



### What is a National Forest?

**National Forests** are managed and protected federal lands that are set aside to be used by everyone. They are large expanses of forest and grasslands that are managed by the Forest Service. There are 154 national forests in the U.S. and 2 national forests in Alaska.

**Fun Fact!** The Chugach National Forest was established in 1907!





**Hint** A simple tool—like the rulers on the back—are used by scientists to record their observations. Try it out while you're outside!



It was growing in a sunny spot with a bunch of other fireweed plants.

Height

3 feet  
11 inches

leaf length  
7 inches

Fireweed

## Bear Tracks

spotted 6  
feet from trail



Largest one was

7½ inches  
long

## What is a Field Notebook?

A field notebook is a way for scientists to:

- document what they see in detail
- record questions they have about what they're seeing
- note their experiences while being outside

This is your notebook. Use any spaces to take notes or draw pictures of what you find on your adventures.

## How Do I Become A Junior Ranger?

**Complete at least 5 activities** in this field notebook. When you're finished, bring your book to a Forest Service Ranger so they can see your work. If you can't make it to a Forest Service office, ask your parents to mail it in. The mailing address is located on the back cover.

**Let's get started!**

# ACTIVITY

## 1

Be Safe!

**Weather** The weather can change quickly in Alaska. Be prepared for changing weather conditions.

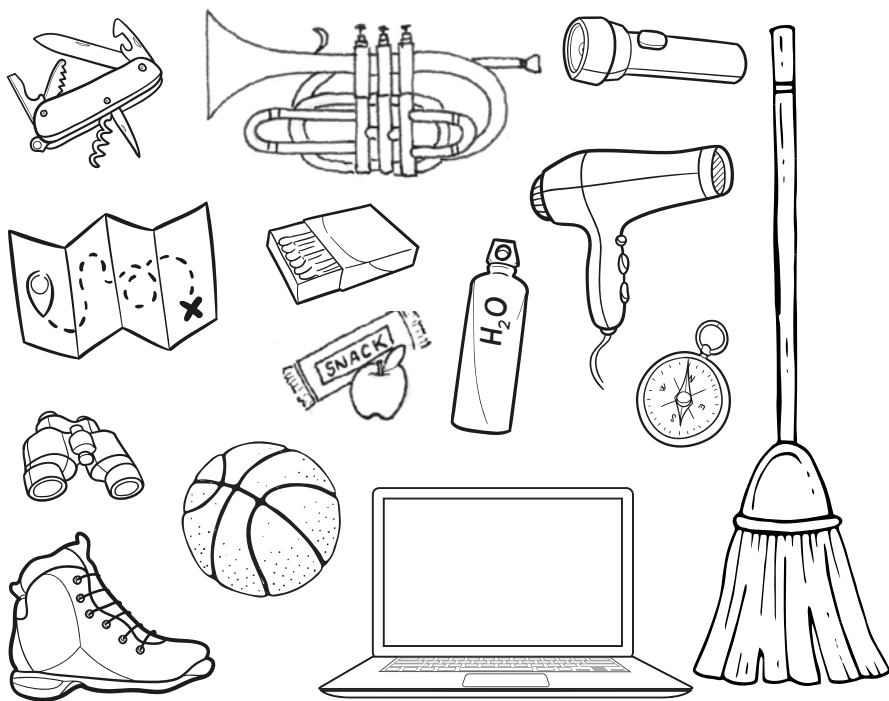
**Size** The Chugach National Forest is large. Sometimes help may be very far away, so prepare ahead of time.

**Wildlife** The Chugach National Forest is home to a wide variety of wildlife. Always be aware of your surroundings and give wildlife plenty of space.

# Know Before You Go

It's important to know how to be safe when you're out in the woods **before** you head out on your adventure. Talk with a Ranger or your group about how you can prepare for your trip and any challenges you might encounter.

**Directions:** Circle the things that you would need to be ready for your hike. Cross out what isn't needed.



## Leave No Trace Seven Principles

Plan ahead and prepare • Minimize campfire impacts • Leave what you find • Travel and camp on durable surfaces • Respect wildlife  
Dispose of waste properly • Be considerate of visitors





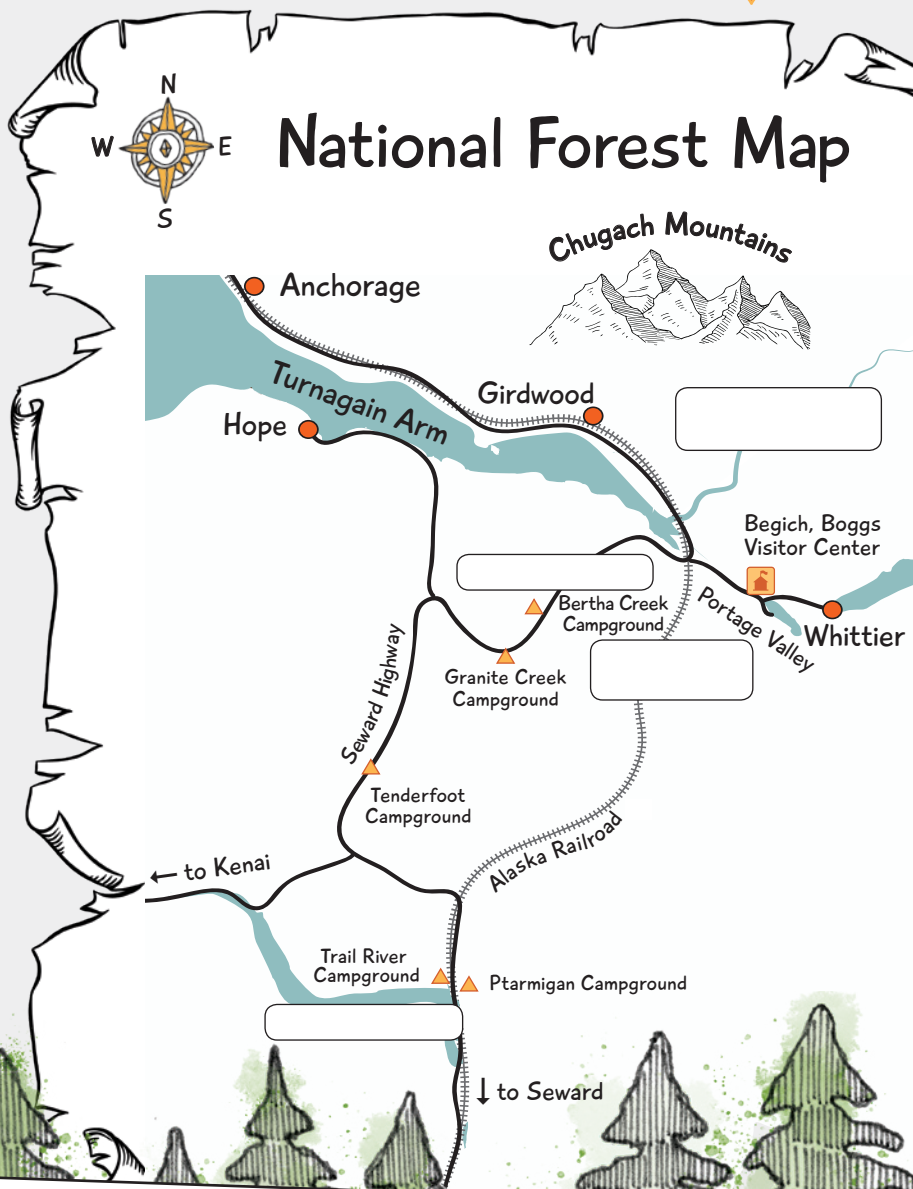
# Find Your Way

Knowing where you are, is important. You orient by using a map, compass and landmarks to figure out locations, as well as learn information from your surroundings.

## ACTIVITY 2

**Directions:** We dropped our map and now everything is out of place! Help us put all the items back on the National Forest map. Check with a ranger if you need help.

- **Twenty Mile River** is N of Portage Valley and S of the Chugach Mountains
- **Turnagain Pass** is W of Portage Valley and NE of Granite Creek Campground
- **Kenai Lake** is S of Trail River Campground and W of Seward Highway
- **Spencer Whistle Stop** is just off of the Alaska Railroad tracks due E of Granite Creek Campground



There are many more fun sites in the Chugach National Forest. See what other places you can add to your map.

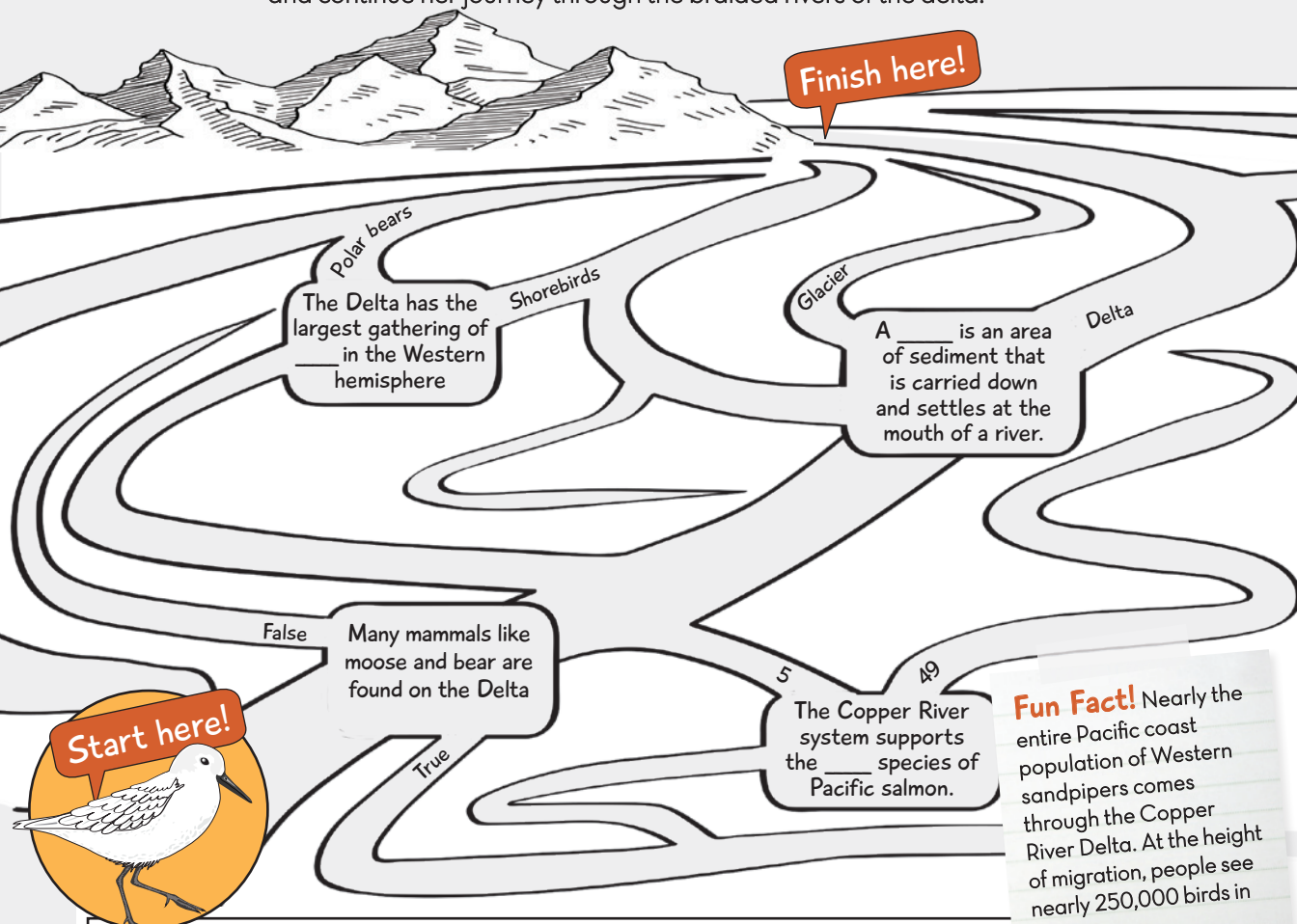
# ACTIVITY

## 3

# Amazing Animals

The **Copper River Delta**, located in the eastern portion of the Chugach National Forest, is an important “refueling” stop for many migratory birds. Each spring, an estimated **12 million shorebirds** stop along the shores of the Copper River Delta on their way north.

**Directions:** Select the correct answer to help the western sandpiper find her friends and continue her journey through the braided rivers of the delta.



The Copper River Delta is also home to a variety of wildlife species. See how many of these tracks you can find on your next visit to the Delta.



Land Otter



Porcupine



Beaver



Wolf



Wolverine



Black Bear



Moose



Brown Bear

Not to scale



# Phenomenal Flora

## ACTIVITY 4

Plants have **adaptations** that make them more suited to their environment—kind of like **super powers**! We can find many examples of these superpowers right here in the Chugach National Forest.

**Directions:** Draw a line to match a plant with its super power. When you're done, draw your own plant with super power adaptations.

Be Safe!

**Don't Touch!**

Use only your eyes. Some plants are poisonous to eat or touch.



POW!

As one of the first flowers to bloom in the spring, you might find me popping up out of the snow. My stems are covered with tiny hairs that help me keep warm.

Despite my name, I am NOT a plant. I have hollow stems that keep me from freezing in cold temperatures. I grow well on the tundra. I am actually a lichen.

BAM!

My fragrant leaves can be used to make a soothing tea. Because my rhizomes (rootstocks) are found deep in the soil, I am one of the first plants to recolonize an area after a fire.

BEAM!

I am a carnivorous plant. I use a sweet sticky substance to catch insects and then special enzymes to break them down. I use the minerals from the insects for the nutrients I need to grow.

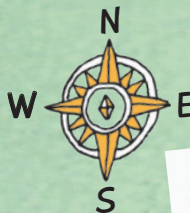


My Super Power Plant



**Fun Fact!**

The **Arctic poppy** rotates with the sun to catch as much sunlight as possible.



## How to Play

1. Find a small rock or other item to use as a game piece.
2. Flip a coin.  
Heads = Move **3** spaces  
Tails = Move **1** space
3. Read the square.  
Some are Fun Facts.  
Others are Directions.

**Start**

**1**  
The Chugach is one of the oldest National Forests—established 1907

**2**  
Alaska Natives have lived here for more than 10,000 years and counting!

**3**  
Forest watersheds provide habitat for 66 million salmon each year.

**4**  
Wow, no space to camp at Russian River Campground. Go back 2 spaces.

**5**  
Picked up debris from beach. Move ahead 2.

**6**  
Stayed at one of the 41 public cabins on the Forest!

**7**  
A lovely day to kayak in the Sound. Take a short-cut to block 10!

**8**  
The Sound has more bald eagles than the entire lower 48 states.

**9**  
Yikes! Your boat ran aground. Move back 1 space.

**10**  
The Nellie Juan College Fjord Study Area is 2.1 million acres.

**EASTERN KENAI PENINSULA**

**PRINCE WILLIAM**



# Kenai to the Copper River: Exploring the Chugach

ACTIVITY

5

11

Good job! You  
used a hardened  
campsite.  
Move ahead  
2 spaces.

12

The Sound is  
still recovering  
from the 1989  
Exxon Valdez  
Oil Spill.

13

The Sound  
has more than  
3500 miles of  
coastline.

16

The Delta is  
created from  
silt being left  
by glacial melt  
in the rivers.

15

Congratulations!  
You caught a  
world famous  
Copper River  
Red Salmon.  
Move ahead  
1 space.

14

Pack your rain  
gear! Many  
areas in the  
Sound receive  
well over 100"  
of rain each  
year.

17

Millions of migrating birds rest  
and feed on the 700,000  
acre Delta each year.

18

Whoa! You got  
too close to a  
calving glacier!  
Move back 6  
spaces.

Finish

Thanks for  
visiting the  
5.4 million  
acre Chugach  
National Forest!

The Coolest Thing I Learned about  
the Chugach National Forest

CHUGACH NATIONAL FOREST BOUNDARY

Gulf of Alaska

Copper River

SOUND

COPPER RIVER DELTA

# ACTIVITY

## 6

# Alaska's Roots

Many of **Alaska Native peoples** have been living off of the land in the Chugach National Forest and Alaska for **thousands of years**. They hunt animals, gather natural foods, such as mushrooms and berries, and collect natural materials for things like tools and medicine.

**Directions:** How could you use the items below to help you survive? Write your ideas next to each item.

a rock



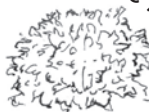
a stick



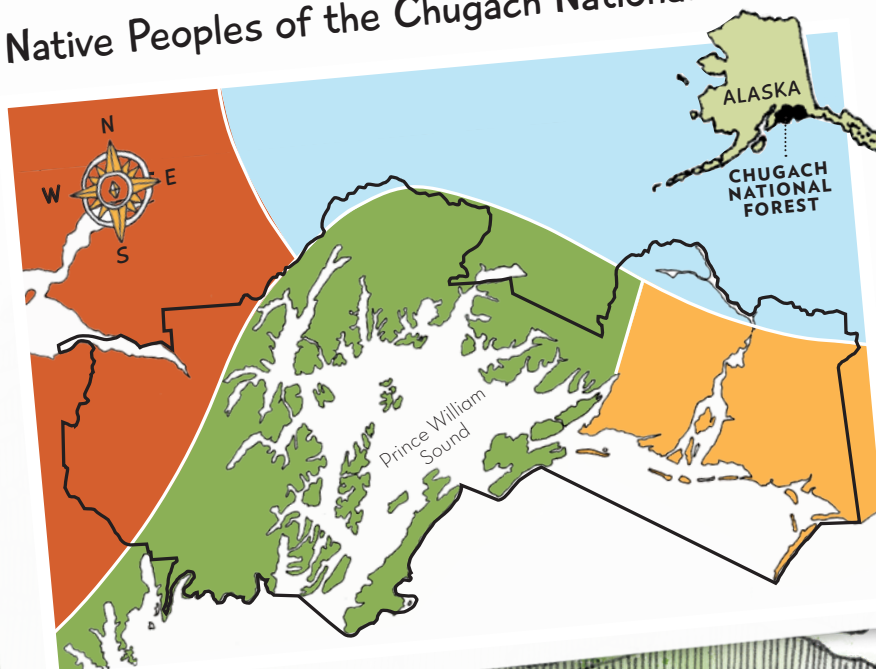
tree bark



some moss



## Native Peoples of the Chugach National Forest



### MAP LEGEND

- Chugach National Forest border
- Alutiiq/Sugpiaq
- Ahtna
- Dena'ina
- Eyak



# A Salmon Forest

ACTIVITY

7

**Fun Fact!** Decaying salmon carcasses and scat (poop) from animals that eat salmon also return important nutrients to the soil.

**Fun Fact!** The Chugach National Forest provides important habitat for more than 10% of **all** Pacific salmon.

The Chugach National Forest has a special relationship to salmon. In fact, Congress set aside the forest land to protect the fish and their habitat. When you think of salmon, where do you picture them being? In a river? In the ocean? While these are true, the nutrients in their bodies end up in many unexpected places.

**Directions:** See if you can spy all **6** salmon hidden throughout the ecosystem.



## The Story Trees Tell

Trees can help scientists understand historical climate records. One way scientists do this is by studying tree rings. This science is called **Dendrochronology**.

**Directions:** Using the tree ring diagram, label the different events in the life of the tree in the core sample below.

**Fun Fact!** **Weather** is a specific event—like a rainstorm—the happens over a short time. **Climate** is the average of weather conditions over a long period of time.

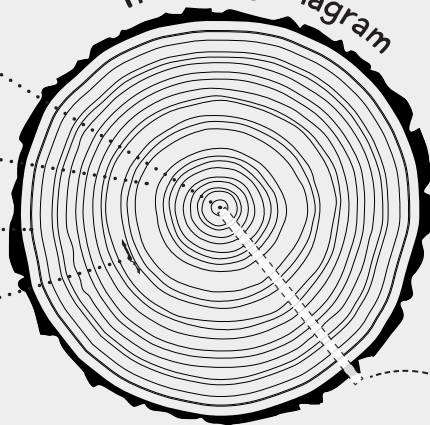
first year growth  
(center rings)

rainy season  
(wider rings)

dry season  
(skinnier rings)

scar tissue from  
forest fire or sickness  
(blemish and recovery)

Tree Ring Diagram



Tree Core Sample



outer bark

**Directions:** Look around and see if you can find a stump or large branch. Draw its rings and see what story it tells you.

**Fun Fact!** The Chugach National Forest is the northern most temperate rainforest. These rainforests are cool and rainy.



# Glaciers

## ACTIVITY 9

Glaciers have **advanced** and **retreated** over the years due to changes in climate. They have played a major role in shaping much of the landscape of the Chugach National Forest.

The Chugach National Forest has nearly **10,000 glaciers!** Most of these are found in Prince William Sound where all the “ingredients” to make a glacier can be found.

**Directions:** Oh no! The steps to make a glacier somehow got mixed up! Help fix this by numbering them in the correct order.

### Recipe for a glacier

#### INGREDIENTS:

- extreme latitude (close to the poles)
- freezing temperatures • lots of snowfall
- high mountains

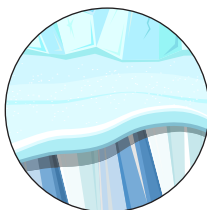
#### DIRECTIONS:

Mix well and wait about ten years!



### Ice Calves

Ice reaches the face of the glacier and breaks off, forming icebergs.



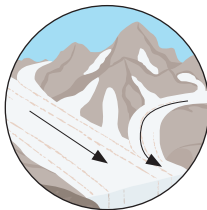
### Ice Forms

The snow compacts over many years creating glacial ice.



### Snow Falls

Snowfall collects on the mountain in an area called the accumulation zone.



### Ice Moves

As the ice grows it begins to move down the mountain. The ice cracks creating crevasses.

**Directions:** Pretend you are a **Glaciologist** (scientist who studies glaciers). Plan an expedition to the Blackstone Glacier in Prince William Sound. Look at a map of the forest for help!

Topics may include:

where you'll go • name of glacier

type of glacier • what you want to study

how you'll get there • how you'll stay safe

how you'll communicate with people • clothing

where you'll stay • food and drink

scientific equipment needed

## Expedition Journal



# Share A Story

**Every adventure creates a story!** Try out your storytelling skills here. Create a comic of your adventure in the Chugach National Forest.



<p>_____ and _____ decided to go (name 1) (name 2) _____. They packed their _____ (verb ending in "ing") (plural noun) and set off on their adventure.</p>			<p>When they got to _____ (place name) they started their _____ (verb ending in "ing") adventure. It wasn't long be- fore _____ felt _____ (name 1) (adjective) so they stopped for a quick _____ . _____ shared (noun) (name 2) some _____ (adjective) (noun) with _____ . Feeling (name 1) _____, they decided to (adjective) continue on their way.</p>
		<p>They saw a _____ on (noun) their way to go _____. (verb ending in "ing")</p>	
<p>Then, _____ saw (name 2) a _____ shape. (adjective)</p>			
		<p>"I don't know! Grab my _____ guide." (noun)</p>	
			<p>_____ grabbed the (name 1) guide and _____ (adverb) looked through it!</p>
	<p>"What is that!" exclaimed _____. (name 1)</p>		
		<p>"Cool! Let's name it _____ (adjective) (adjective) _____ (noun) ."</p>	
<p>"It's not in here!" said _____. (name 1) "We discovered a new type of _____" said _____. (animal or plant) (name 2)</p>			<p>And that's the story of how the first _____ (adjective) _____ was discovered! (adjective) (noun)</p>

# Chugach National Forest Junior Ranger

## JUNIOR RANGER PLEDGE

As a Junior Ranger, I,  
\_\_\_\_\_,  
promise to help protect the  
Chugach National Forest, my  
community, and the environment.  
I will explore the natural world and  
discover other cultures  
wherever I go.



\_\_\_\_\_  
U.S. Forest Service Ranger

\_\_\_\_\_  
Date





## My Favorite Part of the Chugach National Forest:

Produced by **Chugach National Forest** Designed by **Christine Vanderbeek**  
Illustrations by **Anita Koelsch** (fireweed, moose, bear tracks), **Madeline Hamby** (hand lettering)  
Photos by **123RF** (Aleksandr Frolov, Arctic Poppy), **Dreamstime.com** (Kellie Eldridge, spruce background; Pkruger, pine branch), **iStockphoto** (Mjak, ice forming), **Shutterstock** (aarows, tree ring; artnLera, snowflakes; Zelma Brezinska, Caribou moss; ChWeiss, Labrador tea; Creative Family, blueberries; CySpk, lined notebook; davilina2014, snow falling; derGriza, fisherman, kayaker; Cristian Gusa, Pasque flower; Incomible, map paper; josep perianes jorba, binoculars, boot, compass, flashlight, hair dryer, map, matches, water bottle; Kirill Kalchenko, bird; Kiwi Innovation, Alaska state map; Kletr, mosquito; Lorelyn Medina, ice calves; Olga Kovalenko, notebook; MPFphotography, laptop; Natart076, beaver, brown bear, land otter, moose, wolf, and wolverine tracks; Ola\_view, broom; Olly Molly, basketball; RTimages, magnifying glass; Russian Ivantsov, pencil; saraporn, aspen tree; Diego Schtutman, compass rose, super plant hero; SmileStudio, rulers; Vishnevskiy Vasily, bear; vitdes, mountains; wickerwood, ice moving; Yayayoyo, eagle comic)

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William Sound